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## **Industry Perception of Small Aircraft Transportation Systems**

Patrick W. Colligan

John P. Young

## INDUSTRY PERCEPTION OF SATS

### **Abstract**

This project focuses on the use of Small Aircraft Transportation Systems (SATS) in the modern aviation industry. Specifically, business and marketing strategies are examined and analyzed by utilizing a short electronic survey submitted to targeted industry professionals. Selection of individuals was based on groups generated from a stratified sample outside of Purdue University. When properly managed, the Small Aircraft Transportation System has the potential to revolutionize modern air travel. Economic benefits can be achieved not only by effectively transporting passengers, but also by creating a new labor force, manufacturing contracts, and global transactions. Areas that will be emphasized include aircraft design, pilot qualifications, cost analysis, route structure, departmental organization, and selection of senior leadership. Conclusions were drawn, based on this analysis, to determine the risk perception and viability of the SATS program in the United States. Results from this study can provide insight as to how SATS can be introduced into various markets. Several variables needed to construct a complex system such as SATS are presented and analyzed to reveal trends that different industries view as necessary for its successful implementation.

*Keywords:* SATS, NextGen, FAR Part 91/121/135 operations, NAS, FAA, JPDO, VLJ, AGATE, and HVO

## INDUSTRY PERCEPTION OF SATS

### **1. Introduction**

The concept of Small Aircraft Transportation Systems (SATS) is a current research endeavor drawn from multiple agencies including the Federal Aviation Administration (FAA), National Aeronautics and Space Administration (NASA), and local airport and aviation authorities. The system is designed to facilitate transportation between small airports using aircraft capable of seating 2-9 passengers. Industry problems resulted in a major debate for change throughout the past decade. Factors that contributed to these issues include the economic recession, airports reaching capacity levels, and the rising cost of fuel. SATS also makes use of a multitude of resources that are not exercised from traditional airline travel, including a large number of underutilized airports, fuel costs, and time efficiency.

The objective of this project was to reveal different perspectives between industry aviation and non-aviation leaders of creating a small aircraft transportation system for business use. Elements from the study's survey and analysis are built from the previous work of Purdue University graduate alumnus David Ferrel. A review of literature yielded examples of SATS operations in high volume non-towered airports with light aircraft in a majority of weather conditions. Evidence is also provided to gain a perspective on single pilot operations and flying in the congested National Airspace System (NAS).

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### **2. Literature Review**

This section begins with a discussion concerning the need for a new method of air transportation in response to the excess capacity in the NAS. The following topic covers how consumers will be affected by changes implemented from SATS. Additionally, NASA research studies are examined in relation to small aircraft transportation systems. Next, an overview of consumer expectations and business strategies is provided. Finally, past research at Purdue University involving SATS is examined, and a brief explanation is given as to why the concept has not met current demand.

#### **2.1. Industry Need**

Throughout the past few decades, modern aviation has seen a rapid expansion not only in aircraft technology, but also in the amount of traffic within the U.S. National Airspace System (NAS). A majority of the major airports in the United States have either reached or are approaching traffic capacity levels. Now that the nation is beginning to recover from the current economic recession, the demand for air transportation is once again increasing. In response to the mounting scope of air traffic, the Department of Transportation in conjunction with the FAA and Joint Planning Development Office (JPDO) has begun revamping the NAS in the NextGen program (JPDO, 2011). Although NextGen was originally commissioned in 2003, its efforts to meet increasing traffic loads and uphold safety in the NAS are not scheduled to be completed until approximately the year 2022.

In recent years, an innovative new system that can avoid the airspace gridlock of major airports has begun to enter the air transportation market. The Small Aircraft Transportation System, known as SATS, is a revolutionary program that utilizes aircraft seating 14 or less to

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offer an affordable and convenient means of travel (Jaroszewicz, 2009). Airplanes that were once only utilized for training and personal use are beginning to take on a new role of public transport operating under FAR Part 91 and eventually extending into FAR Part 135 operations. Airports that are unusable for transport category and large corporate jet aircraft are now available for SATS operations. In many cases, these satellite airports are in closer proximity to the city or area of interest for passengers. SATS also provides a means for fuel cost savings during a period in which costs are continually on the rise. SATS usage of reciprocating and turboprop powered aircraft consumes considerably less fuel, and maintenance costs are lower than those of turbojet aircraft. Unfortunately, statistics show that passenger perceptions with flying on propeller-driven aircraft are generally negative (Horne, 2008); however, the newly introduced Very Light Jet (VLJ) market is another option for SATS aircraft. Not only do their miniature size and efficient engines continue to save costs in flying, but VLJs are also FAA-approved for single-pilot operation.

### **2.2. Effects on Consumers**

The fate of SATS rests upon consumer impression concerning the safety, effectiveness, and stability of the program. Referenced in this review of literature are several journal articles devoted to the research and continuing innovation of SATS. These examples provide information on SATS marketing strategies exercised by organizational management, safety culture assessment, and examples of several companies who have successfully used the program productively and profitably.

Tarry and Bowen (2001) note that SATS is an emerging solution to the overburdened hub and spoke air transport system and relative isolation of communities that do not have access to

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air travel. When this article was written 10 years ago, there were a recorded 5,000 general aviation airports in the United States. Further development in the usage of those airports provides a means of economic enhancement for rural areas of the country. A number of air carriers who attempted service to isolated communities failed mainly as a result of large market preference and defined route networks. The authors interpreted the success of SATS to be a cooperative effort between government, industry, and academia.

Implementation of a small aircraft transportation system also alleviates pressure on capacity-constrained airports, thereby allowing growth for air carriers. During 2001, airport expansion costs included \$1 billion for a single runway and around \$10 billion to construct a new airport, which can usually require at least 10 years to complete (Tarry & Bowen, 2001). Even if airlines, airports, and the NAS were able to implement rapid changes to increase the flow of air traffic, the system would continue to be overwhelmed. Interestingly, the government has been subsidizing air transport service in communities that cannot support an air carrier.

### **2.3. NASA Research**

In the 1990's, NASA pioneered the Advanced General Aviation Transport Experiment (AGATE) consortium which enabled investments in the private sector to develop SATS (Tarry & Bowen, 2001). Although SATS is a solution to a multitude of transportation and economic problems, it is not designed to cure the overflow of air traffic.

Munoz, et al. (2006) reviewed how NASA constructed SATS as a project to increase access to small non-towered and non-radar airports. They detailed a new mathematical approach to the SATS concept, which used non-deterministic asynchronous transition systems. NASA also added the term High Volume Operations (HVO) to the SATS title, to focus on a concept that

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enables simultaneous arrival approaches and multiple departures at small airports during IFR conditions. The SATS HVO concept designs a Self-Controlled Area (SCA) and Airport Management Module (AMM) to serve as an arbiter to aircraft. Under these conditions, only the more technologically-advanced small airplanes are able to be self-separated. A number of rules and procedures are needed to govern SATS aircraft in SCA airspace, as well as a discrete mathematical model of the operation. Research development in the article includes intricate designs of spacing, approach, and holding procedures for SATS HVO. The authors provide a detailed programming and mathematical analysis of their design. The program will allow spacing of 3 nautical miles on final approach, to comply with current safety requirements (Munoz, et al., 2006).

### **2.4. Public Interest and Concerns**

Jaroszewicz (2009) noted that the creation of selection criteria for SATS must take the public interest into account. His analysis also revealed that single-pilot aircraft capable of serving up to 14 passengers could potentially speed up air transportation. Current methods of air transportation are able to break-even, only after accumulating flight distances in a range of 600-800 kilometers. The author provides a European perspective on the SATS initiative which is denoted STMS (small transport management system). STMS is designed essentially the same as SATS and sets a goal for reducing travel time by 75% in the year 2030. Underdeveloped regions in Europe that have poor roadways and small remote landing strips create large demand for STMS. Poland for example possesses 118 airports, only 38 of which have paved runways. Preliminary assessments of STMS reveal that approximately 20%-40% of citizens will have access to the system, which is projected to reduce costs to a level that compares favorably to car



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transport. Jaroszewicz concludes by reiterating the fact that across the globe, a multitude of aircraft already exist for the purpose of SATS; the only issue is proper management and public acceptance of the new method of transportation (Jaroszewicz, 2009).

Carreno and Munoz (2005) formulated a method of safety analysis and verification for SATS using a nontraditional approach. Because SATS is at an early design stage it is difficult to research human factors with simulations and experiments. The NASA researchers use mathematical techniques and computer-aided tools based on logic, formal deduction, and state exploration (Carreno & Munoz, 2005). Bowen and Hanson (2001) also provide insight on the risk of SATS and its operating capabilities. Background for their article comes from the fact that 80% of accidents are caused by pilot error. General aviation has a poorer safety record than that of commercial carriers due to factors in aircraft technology, pilot training and credentials, and the operating environment. SATS aircraft in the general aviation environment will include advanced navigation and flight instruments, whose technology is even more developed than equipment installed in most airline fleets. A key hypothesis to their study is that safe travel in a SATS vehicle is possible during unfavorable weather and abnormal operations, similar to air carriers. Given current constraints, in which environmental protection and vehicle efficiency are held to be extremely important, the SATS concept can be more readily accepted (Bowen & Hansen, 2001).

### **2.5. Research Implemented at Purdue University**

Recent studies have been performed in association with SATS at Purdue University under the direction of graduate student David Ferrel and his advisory committee. This project examined the impact and relationship between demographic factors and risk perceptions of SATS in a

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collegiate setting. In order to obtain the data, a survey was electronically administered to Purdue faculty members and selected leaders within the Purdue Intercollegiate Athletics department. The results revealed that certain demographic factors are predictors of SATS risk perception (Ferrel, Carney, & Winter, 2011).

The goal of Ferrel's study was to concentrate on the risk perception of SATS in a university transportation environment. Because the results yielded categorical data, a Chi Squared test was used with several factors to determine any statistical significance. After performing the analysis, the outcome reported gender, academic position, and general aviation familiarity to be the greatest predictors of SATS risk perceptions for participants. His findings disclosed that high ranking individuals placed greater emphasis on their value of time rather than the cost of transportation. Ferrel's conclusion of the study also reported that those who are familiar with general aviation had less concern over physical and status risk while using SATS. The knowledge and awareness generated from this project have opened doors for future research and analysis in the concept of SATS.

### **2.6. Slowed Progress**

The current economic recession, which began in 2008, has played a major role in deterring future progress of SATS. A sample taken from a small airport in Washington State revealed almost a 50% decrease in takeoffs and landings between 2000 and 2010 (Sheets, 2011). Rising fuel prices, combined with the effect of cost savings, resulted in little or no flying for aircraft owners each year. According to the FAA (Sheets, 2011), general aviation flights have continued to decline more than 5% in 2010 and the short-term outlook is showing little signs of improvement. Aviation fuel now costs more than \$6/gallon, which is approximately twice what it

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was four years ago. Businesses are currently focusing on cutbacks and budget costs rather than convenience and image. However, with small signs of an improving economy, forecasters are optimistic that demand for light aircraft will eventually improve (Sheets, 2011).

In the manufacturing industry, piston and light jet aircraft have taken the greatest hit compared to large cabin, long range jets such as the Gulfstream and Global Express. Hawker Beechcraft Corporation announced in December, 2011 to slow development on the Hawker 200 light business jet amid concerns for its current profitability (Sarsfield, 2011). Piper Aircraft Corporation also revealed to indefinitely suspend the PiperJet Altaire program in late 2011, which is another VLJ concept. Interim CEO of Piper, Simon Caldecott, explained that “the market for light jets is not recovering sufficiently and quickly enough to allow us to continue developing the [PiperJet] program under the economic circumstances we face” (Trautvetter, 2011, p. 1). Asking prices of light jets have rapidly decreased as demand for these products have plummeted in traditional markets. The inability to finance and invest in privately owned light aircraft has also become more difficult with the tightening of bank lending (Sarsfield, 2011).

There quantity of current literature on the subject of Small Aircraft Transportation Systems is scarce compared to other areas of research. Due to its new design and the ever-changing requirements of the aviation industry, it is difficult to formulate a hypothesis and perform tests to enable an effective system. However, small amount of previously-published articles provide a thorough and educational perspective regarding areas of research completed and aspects needing further development.

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### 3. Methodology

This chapter provides an overview for the framework and methodology used to determine how various industries consider the implementation of SATS. Herein, the research methodology is discussed in addition to the survey structure, and how the findings may be further expanded upon in future research. The framework and methodology was based on the following.

#### 3.1. Study Participants

- Persons Having Aviation Experience
  - Aircraft owners
  - Aircraft operators
  - Aviation Managers
- Persons Having No Aviation Experience
  - Business owners
  - Operators of complex systems

#### 3.2. Design of the Research

In order to collect data for this project, a survey was administered to the two groups of individuals listed above. Individuals selected for the survey were in a common position to utilize SATS for either personal or business endeavors. The survey was designed to include a sample of at least 20 members from each main category, producing a minimum of 40 participants. This sample size assured that the Central Limit Theorem was applicable. An electronic questionnaire design, which was anonymous, voluntary, and self-administered, was appropriate for the material and results being studied. The survey was designed to assess respondents' opinions and perceptions concerning the usage of a Small Aircraft Transportation System. The instrument

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consisted of 10 questions on a five-point Likert scale, for which one is not very accurate to five which is very accurate. Certain elements were taken from Ferrel's research (Ferrel, Carney, & Winter, 2011) and used to form questions in the survey, while others were developed in order to answer the research question of how business leaders perceive the vitality of SATS.

### **3.3. Data Collection**

Demographic information was requested along with the survey questions. The following respondent demographic information was desired for comparative purposes in analyzing the results of the data: gender, job, age, and organization. Due to possible bias throughout various organizations, specific aircraft types were not identified. Instead, certain parameters were listed such as number of seats, engines, pilots, range, and operating cost. The survey was distributed via e-mail on a predetermined schedule. Traditional e-mail procedures were used for each group, which contained a coversheet for the proposed research and provided a link to the survey.

Implementation and data collection for the survey was conducted using the Purdue Qualtrics Survey software. The questionnaire was designed to take no more than five minutes to complete and the researcher obtained IRB approval prior to being administered. Once responses were received, the survey data was analyzed with respondents' demographics considered, but with individual identifying information removed and a participant number assigned for record keeping purposes. In anticipation of a potentially low response rate to the survey, 60 individuals were mailed the survey from each group. Following the survey sampling period, 47 total responses were collected which yielded a response rate of 29.38%.

#### 4. Results

A categorical data analysis was performed after receiving the completed surveys. Using the demographics of the respondents, significant trends were sought out within each group. In order to conduct this statistical analysis, a Chi Squared test was utilized to compare means and identify significant differences. An alpha value of 0.05 was used to determine the probability that these same results could be obtained without the desired effects. Therefore, the research being performed is 95% confident that the results were not from chance, if the Chi Squared test results in a p-value of 0.05 or less. The responses for each category are listed in Table 1, with an n value representing the number of participants.

Table 1  
*Demographics of Responses*

| <i>Demographics</i>                 | <b>Survey Participants</b> |                   |
|-------------------------------------|----------------------------|-------------------|
|                                     | <i>n</i>                   | <i>Percentage</i> |
| Gender (n=47)                       |                            |                   |
| Male                                | 42                         | 89.4              |
| Female                              | 5                          | 10.6              |
| Age (n=47 )                         |                            |                   |
| 18-29                               | 23                         | 49                |
| 30-39                               | 9                          | 19.1              |
| 40-49                               | 3                          | 6.4               |
| 50-59                               | 5                          | 10.6              |
| 60-69                               | 7                          | 14.9              |
| Pilot Certificate Holder (n=47)     |                            |                   |
| Yes                                 | 21                         | 44.7              |
| No                                  | 26                         | 55.3              |
| Industry Leadership Position (n=44) |                            |                   |
| Aviation                            | 21                         | 47.7              |
| Non-Aviation                        | 23                         | 52.3              |

Age and gender were the only physical characteristics sought in the survey. There was an overwhelmingly large response rate from men in both aviation and non-aviation businesses.

However, age had a much larger spread between groups. Forty-nine percent of total respondents

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were between 18-29 years old, while the percentages of older age groups remained relatively even. There were no respondents older than the age of 69.

Various demographic factors were applied to determine whether aviation experience played a role in the successful implementation of SATS. A total of 47% of total respondents replied “yes” when asked whether or not they were familiar with the SATS concept. These results reflect on the percentage of respondents who possessed a background or knowledge related to aviation. The subjects were then queried on whether they held an FAA pilot certificate, which yielded results of 45% “yes” and 55% “no.” A Chi Squared analysis was then performed to determine if a relationship existed between individuals who possessed a pilot certificate and were familiar with SATS. Using one degree of freedom, the test produced a p-value of 0.11. Therefore, there was no statistical significance between these two categorical variables.

Several viewpoints on SATS were collected from both groups of industry representatives using the Likert scale portion of the survey. The results showed varying responses in either aviation or non-aviation related industries with statistical significance. A p-value of approximately 0.01 was achieved using a Chi Squared test that compared participant involvement with aviation to their comfort of flying in a single-engine aircraft. When participants were asked if they were comfortable flying in this type of airplane, 78% of aviation and 44% of non-aviation professionals strongly agreed. The number of respondents who were completely comfortable flying in a single-engine aircraft began to vary once asked specifics of the air service offered. Approximately 56% of respondents in both groups agreed they would have no issue flying on an aircraft with less than five seats. However, when asked if they were comfortable traveling in a piston propeller driven aircraft, 89% of the aviation group strongly agreed while only 56% of the non-aviators completely consented to the idea. A significant deterrent to the idea of SATS was

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uncovered when industry leaders were asked to rate their opinions of flying on an aircraft operated by a single-pilot. Of the aviation group, only 22% ranked a “5” on the Likert scale, while 44% on the non-aviation group marked “5” as their choice.

Participants were also asked several questions related to the marketability and usefulness of SATS in their respective businesses. Integrating SATS into the current business model of a company was revealed to be slightly doubtful in either group whether or not they had an aviation background. The current economic state of the industry may lead to more conservative decisions on such an endeavor. The results of this study relate to such a theory, revealing that only 22% of both groups agreed SATS would be viable with current market trends. Out of all aviation leaders, none felt that small piston powered aircraft would be sustainable for transportation; while on the other hand, 22% of non-aviation businesses strongly agreed this was possible. This trend could produce a theory that individuals with aviation backgrounds may have more reservations to fly on certain aircraft due to their background knowledge of its safety record. Next, when asked if flying small aircraft for short range transportation could be profitable for businesses, 44% of aviation and 33% of non-aviation groups strongly agreed. Funding and public perception of SATS was also revealed to be slightly low. Twenty-two percent of leaders in both fields ranked a “5” in response that given the time, money, and applicability they would invest in SATS. Out of the non-aviation leaders, 11% strongly agreed that their organization’s public image would increase by utilizing a small corporate aircraft. Again, only 22% of leaders in the aviation industry stated this would be of help to their company’s image.

The highest rated travel priorities for business owners or managers are shown in Figure 1. Based off the results, there is an emphasis placed upon convenience and cost of transportation. Further expansion upon similar rankings can assist in creating a SATS model throughout smaller companies. Using these results could help justify the cost savings and convenience capabilities



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that small aircraft may provide for a company.

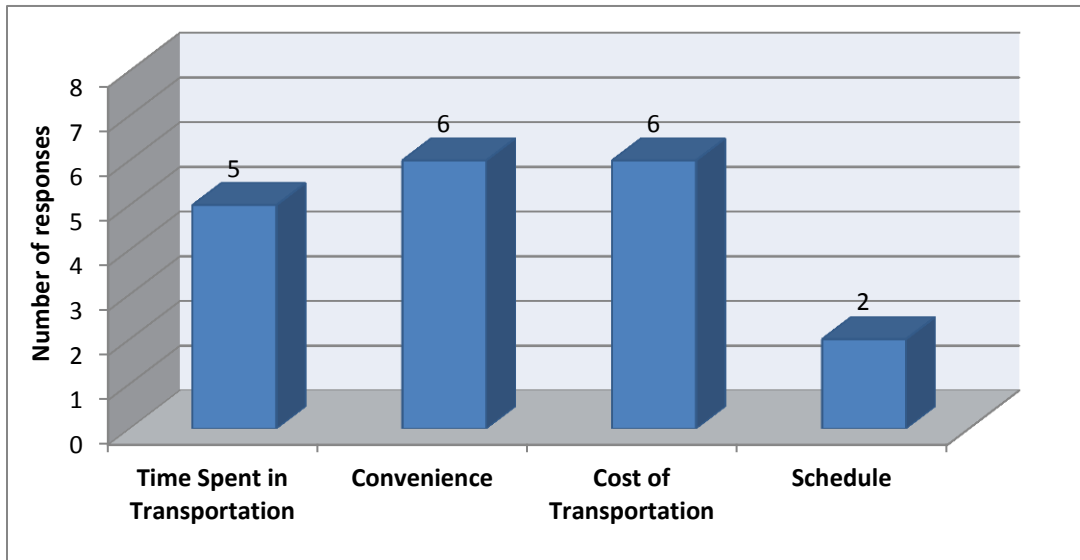


Figure 1. Highest ranked travel concerns for non-aviation business owners or managers

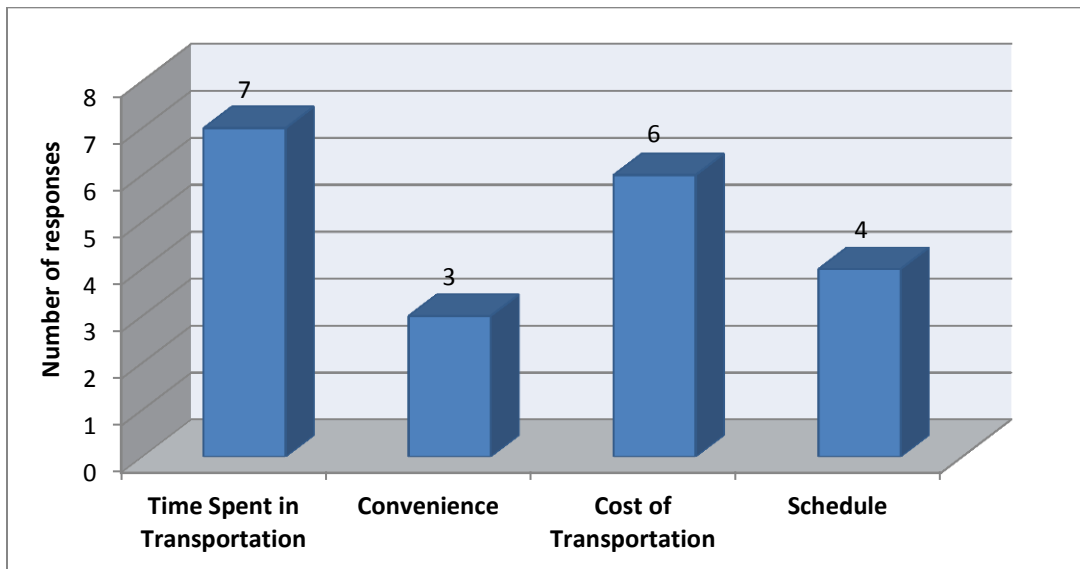


Figure 2. Highest ranked travel concerns for business leaders in the aviation industry

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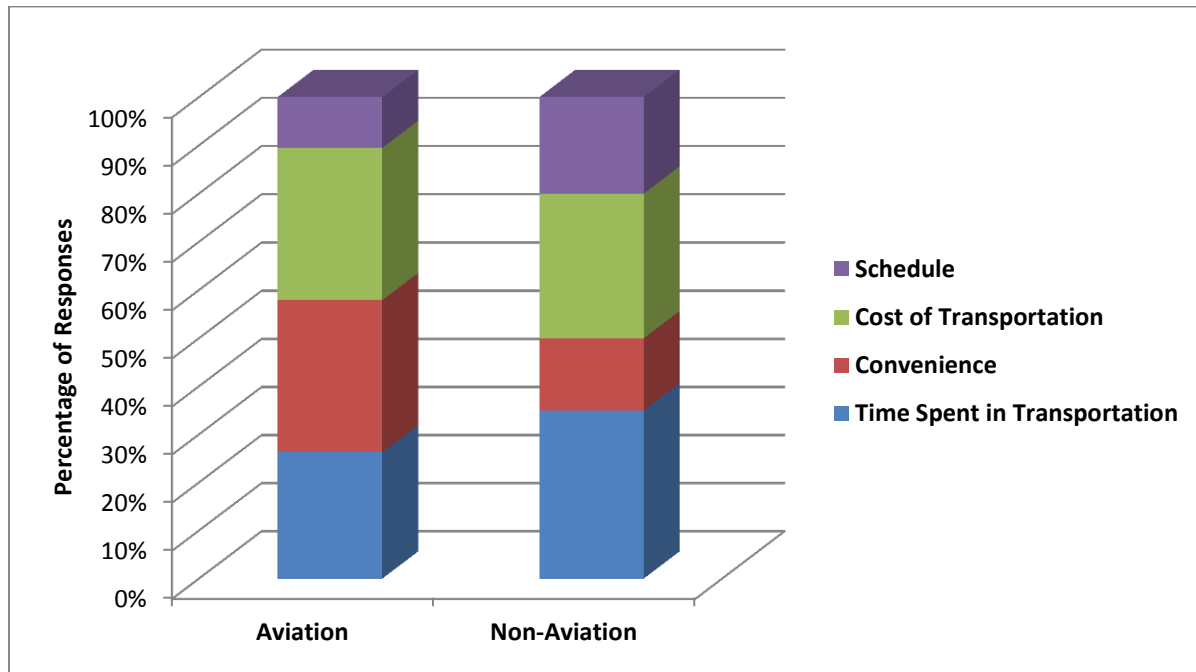


Figure 3. Comparison of means between both leadership groups

The results of travel priorities for aviation related respondents are shown in Figure 2. Time spent in transportation is ranked highest with cost also taking high precedence. Convenience was least important among aviation groups, unlike business leaders who stress a high level of importance. Figure 3 also displays a comparison of means between each category of respondents due to their different sample sizes. Several unknown variables could cause these differences between the two groups. One postulated theory as to why this occurs can come from the access of standby travel and jump seat privileges on the airlines. Corporate and manufacturing industries in aviation also have assets provided for necessary air travel, which places convenience at a lower concern. Because air travel is already an integral part of the system, time and money could be weighed in as a higher concern.

Participants were also asked to reveal why they would or would not want to implement a transportation system using small aircraft for their businesses. Several responses cited accident

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rates with smaller aircraft being much higher than those of airliners or corporate jets. The overall cost for a business to invest in such an endeavor also generates a hurdle, especially when considering the potential for growth and profit. An accurate budget and cash flow analysis would be required in determining if SATS would fit a company. Additional questions that concerned promoting the system generated further thoughts on the topic. Reliability, safety, and aircraft maintenance were cited as being critical success factors for the new system. Determining the time value of money for individuals having access to the aircraft was also to be considered.

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### 5. Discussion and Conclusions

This study reveals several perceptions from aviation and non-aviation industries concerning the implementation of a Small Aircraft Transportation System. Due to the relatively small sample size of this study, the findings cannot provide an accurate representation of either industry. However, the causal factors revealed from this data create the potential for future research and development of SATS in a business environment. Aviation familiarity is a strong predictor for whether or not individuals are comfortable with flying in a small aircraft operated by a single pilot. Business executives had reservations in perceiving this option to be profitable in the current economic setting. Although, when asked if given time to interpret their option of using such a system there was a positive feedback.

Study participants in the aviation field hold management positions within FAR Part 91, 121, and 135 operations. Their distribution was evenly spread and included a slightly higher number of Part 121 respondents. Non-aviation participants ranged from small business owners, sales managers, law firm executives, and engineering managers. A few outliers were discovered when concluding the analysis which revealed both groups are comfortable in a single engine airplane that is outside of their usual travel environment. Leaders in industries other than aviation also portray confidence in their pilots, that regardless of the aircraft type flown, they are properly trained to safely and effectively deliver them to their destination.

The results of aviation and non-aviation leader's viewpoints of flying in a single-engine airplane show a strong similarity to David Ferrel's results when comparing the risk perceptions of Purdue faculty. In Ferrel's study, 43% of individuals who were not familiar with general aviation agreed they would be comfortable flying in a single-engine airplane. His study also

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revealed 89% of participants familiar with general aviation had no reservations when flying in a single-engine airplane.

Using this study, along with similar research performed with industries that have the potential to operate SATS, one can provide insight as to how this new approach will be introduced. Each business currently operating a corporate aircraft or number of aircraft chose to invest in the system based on its business model. The same concept will hold true with SATS as companies must decide which aircraft will sustain profitability and growth.

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### Appendix - Qualtrics Survey

You are about to take an anonymous survey. It should not take you more than 5 minutes to complete the survey; you can discontinue the survey at any time. The risks associated with this survey are minimal and are no greater than everyday activities. There are no direct benefits to you in this survey, including compensation. Indirect benefits of completing this study may include contributing to the body of knowledge concerning the usage of Small Aircraft Transportation Systems. A copy of the final study will be provided upon request. If interested, you may contact Patrick Colligan at [pcolliga@purdue.edu](mailto:pcolliga@purdue.edu).

This study's results may be reviewed by the Purdue University Aviation Technology Department and other Purdue departments responsible for regulatory and research oversight. No identifying information will be collected or attached to the results of this project. You do not have to participate in this study. If you agree to participate you can withdraw at any time from the survey without penalty. If you have any questions, you can contact Patrick Colligan at [pcolliga@purdue.edu](mailto:pcolliga@purdue.edu) or John Young at [jpy@purdue.edu](mailto:jpy@purdue.edu). If you have any questions about the treatment of research participants, you can contact the Institutional Review Board at Purdue University, Ernest C. Young Hall, Room 1032, 155 S. Grant St., West Lafayette IN, 47906-2114, or by calling (765) 494-5942, or at [irb@purdue.edu](mailto:irb@purdue.edu). Please complete your survey no later than *deadline*.

#### 1. Gender

- ☐ Male
- ☐ Female

#### 2. Age

- ☐ 18-29
- ☐ 30-39
- ☐ 40-49
- ☐ 50-59
- ☐ 60-69
- ☐ >70

#### 3. Aviation Experience

- Do you currently hold an FAA Pilot Certificate?
  - ☐ Yes
  - ☐ No
- Are you familiar with the concept of Small Aircraft Transportation Systems (SATS)?
  - ☐ Yes
  - ☐ No
- Which of the following are you affiliated with?
  - ☐ Part 91 – General Aviation Operations
  - ☐ Part 121 – Domestic, Flag, or Scheduled Air Carrier Operations
  - ☐ Part 135 – Commuter and On-Demand Operations

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- Other
  - Please Describe:\_\_\_\_\_
- What best describes your profession or hobby
  - Aircraft Owner or Operator
  - Aviation Manager, Analyst, or Dispatcher
  - Aircraft Pilot
  - Aircraft Mechanic
  - Business Owner
  - Operator of a Complex System
  - Other
    - Please Describe:\_\_\_\_\_

### 4. Perception of the System

- Please rate your personal perspectives on the following activities using the scale below.

1 – Strongly Disagree, 2 – Somewhat disagree, 3 – Neither Agree nor Disagree,  
4 – Somewhat Agree, 5 – Strongly Agree

- I am comfortable with flying in a single-engine airplane..... 1 2 3 4 5
- I am comfortable when onboard an aircraft other than a scheduled airline..... 1 2 3 4 5
- There is no issue of flying in an airplane with less than 5 seats..... 1 2 3 4 5
- I am comfortable about flying on a jet powered airplane.....1 2 3 4 5
- I am comfortable about flying on a turbine-propeller powered airplane..... 1 2 3 4 5
- I am comfortable about flying on a piston propeller powered airplane..... 1 2 3 4 5
- Using small aircraft for transportation is viable in the current state of the industry..... 1 2 3 4 5
- The marketability of small piston powered aircraft for transportation is sustainable ..... 1 2 3 4 5
- I am comfortable flying in an aircraft operated by a single pilot.....1 2 3 4 5
- Pilots who have been trained and operate the marketed aircraft are well qualified..... 1 2 3 4 5
- Businesses can be profitable using small aircraft for short range transportation..... 1 2 3 4 5
- Given time, funding, and applicability I would invest in small aircraft for my business..... 1 2 3 4 5
- Public image of my organization would increase using small aircraft in transportation..... 1 2 3 4 5

### 5. Travel Concerns

- Please select your highest priority in considering travel
  - Time Spent in Transportation
  - Convenience
  - Cost of Transportation
  - Schedule



## INDUSTRY PERCEPTION OF SATS

**6. Comments**

Please describe why you would or would not want to implement a transportation system using small aircraft in your organization.

How could you promote the use of small aircraft in order to create a successful operation?

Additional Comments